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[JP,2002-335388,A]

CLAIMS DETAILED DESCRIPTION
TECHNICAL FIELD PRIOR ART
EFFECT OF THE INVENTION
TECHNICAL PROBLEM MEANS
DESCRIPTION OF DRAWINGS
DRAWINGS

[Translation done.]

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DETAILED DESCRIPTION

[Detailed Description of the Invention]
 [0001]

[Field of the Invention] This invention relates to image forming devices, such as a copying machine which can combine and form the manuscript picture of two or more sheets on the same paper.

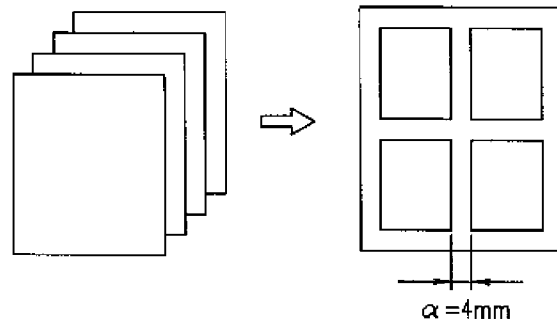
[0002]

[Description of the Prior Art] From the former, image forming devices, such as a copying machine which has a function which forms a picture from the manuscript of two or more sheets on the same paper, are indicated, for example in JP,2-308265,A etc. In this advanced technology, after scanning the manuscript picture of the 1st sheet laid in the exposure glass plate surface according to an optical system, once transferring in a paper and making it established through

Drawing selection **Representative draw**

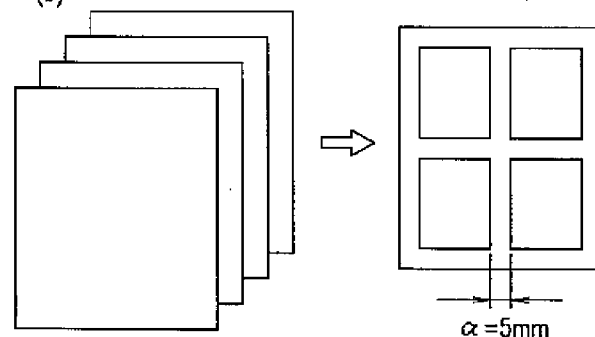
(a) 原稿: B5 サイズ

A4 用紙



(b) 原稿: A4 サイズ

A4 用紙



[Translation done.]

an anchorage device, the stack of the paper is carried out to an intermediate tray. And timing is taken and a desired position is made to transfer with the resist roller arranged just before a transfer section to the manuscript after the 2nd sheet.

[0003]After inputting the manuscript number of sheets made to copy in the paper of one sheet in JP,6-93739,B and reading the manuscript picture for the number of sheets, the digital copier which edits and bundles up the image data which the paper was made to correspond and was read, and forms a picture in the paper of one sheet is indicated.

[0004]

[Problem(s) to be Solved by the Invention]however, in the art of JP,2-308265,A mentioned above, since an intermediate tray is needed when compounding two or more manuscripts and carrying out image formation to the paper of one sheet, there is a problem that a copying machine will grow large. Since an anchorage device lets a paper pass repeatedly, there is also a problem of being easy to moun over a paper.

[0005]On the other hand, in the art of JP,6-93739,B, when editing the image data which the paper was made to correspond and was read, it is not shown clearly whether on a paper, at intervals of how much are all the pictures arranged, and image formation is carried out.

[0006]This invention is made so that it may solve the technical problem of such conventional technology, and it is a thing. It is providing the image forming device which can prevent damage to the purpose and a paper, can set up the unfilled space interval of a picture, and can combine and form the picture from the manuscript of two or more sheets on the same paper.

[0007]

[Means for Solving the Problem]When reducing an image forming device of this invention so that two or more pictures may not be lapped, and forming image composing in a paper of one sheet, it has a means to set up an unfilled space interval of a picture, and the above-mentioned purpose is attained by that.

[0008]According to the above-mentioned

composition, an unfilled space interval of a picture is set up by a picture space interval setting-out means, and it becomes possible to combine and form a picture from a manuscript of two or more sheets on the same paper.

[0009]An unfilled space interval of a picture may be set up with the directions from a user, may be set up with a paper size, may be set up with manuscript size, and may be set up with manuscript total size.

[0010]

[Embodiment of the Invention]

(Embodiment 1) Drawing 1 is a sectional view showing the basic constitution of the transcription mold electrostatic copying machine provided with the manuscript automatically carry function which is one embodiment of the image forming device of this invention. The manuscript conveying machine 1 for carrying out automatically carry of the manuscript is arranged at the upper surface of the main part 3 of the copying machine 2. Before this manuscript conveying machine 1 delivers the manuscript of two or more sheets which has the manuscript tray 7 which is the 1st manuscript placing part, and the manuscript delivery tray 61 which is delivery units, and was laid in the manuscript tray 7 to the manuscript delivery tray 61 one by one, it is possible to make a manuscript expose by that middle. Exposure in this case is performed by conveying a manuscript to the upper surface of the exposure glass plate 10, fixing the exposure means 17 to a position.

[0011]The manuscript stand 5 which is the 2nd manuscript placing part is formed in the upper surface of the main part 3, and opening and closing are made possible with the manuscript cover 6. The exposure glass plate 12 of translucency is formed in this manuscript stand 5. A manuscript can be placed on the exposure glass 12, it can cover with the manuscript cover 6, and a manuscript can be made to expose by moving the exposure means 17. The manuscript tray 7 which is the 1st manuscript placing part is formed on this manuscript cover 6. The manuscript of two or more sheets laid on the manuscript tray 7 is picked out from the manuscript

tray 7 with the calling-in roller 8, and is guided to the upper surface of the exposure glass plate 10 which has translucency along with the guide plate 9. It is independently provided so that it may turn out to be the exposure glass plates 10 and 12 from drawing 1 and drawing 2.

[0012]In the main part 3 of the lower part of the above-mentioned exposure glass plates 10 and 12, the exposure means 17 movable to the longitudinal direction of drawing 1 is arranged. The light sources 18, such as a halogen lamp, and the reflector 19 are formed in this exposure means 17, it is irradiated with the light from the light source 18 on the surface of a manuscript via the exposure glass plates 10 and 12, and the reflector 19 is irradiated with catoptric light. It is caudad reflected by the reflector 22 formed in the end of one side of the move direction of the exposure means 17, and the light reflected by the reflector 19 is reflected so that light income may serve as the maximum to the zoom lens 24 with the reflector 23 formed caudad. This zoom lens 24 can be set as desired magnification. The catoptric light which passed the zoom lens 24 enters into CCD100, and is stored in the image memory which catoptric light is changed into an electrical signal and does not illustrate. Then, based on the image data of an image memory, light is irradiated from the laser 101 and it enters on the photo conductor 26 via the reflector 25.

[0013]The corona discharge machine 27 for electrification is formed, and the surface of the photo conductor 26 before exposure is uniformly charged by this so that it may counter with the surface of the photo conductor 26. And the light corresponding to a manuscript picture is led to the exposure region 26a, if image formation is carried out, the surface of the photo conductor 26 of the portion will be discharged selectively, and the electrostatic latent image corresponding to a manuscript picture will be formed. The developer 28 is formed in the hand-of-cut downstream rather than the exposure region 26a of the photo conductor 26, a toner is supplied, an

electrostatic latent image is actualized, and a toner image is formed. This toner image is transferred by the paper with the corona discharge machine 29 for transfer in the transfer area 30. The toner which remains on the surface of the photo conductor 26 after transfer is removed by the cleaning device 31.

[0014]The main part 3 of the copying machine 2 is loaded with the sheet paper cassettes 32A-32D which store the paper with which sizes differ respectively from the side. By the feed rollers 33A-33D, the paper P located in the topmost part of the paper laminated by any one sheet paper cassette among these sheet paper cassettes 32A-32D is taken out from a sheet paper cassette, and is led one sheet at a time to the feed routes 34A-34D. The feed rollers 33A-33D are selectively rotated by the driving means of motor M1 grade.

[0015]The resist rollers 35A and 35B are formed in the feed routes 34A-34D and the conveying path between about 30 transfer areas of the photo conductor 26. The rotation driving force of the motor M2 is selectively transmitted to these resist rollers 35A and 35B via the clutch which is not illustrated.

[0016]In order to supply a paper to the feed routes 34A-34D from the above-mentioned sheet paper cassettes 32A-32D, the transportation rollers 38A-38D are allocated respectively. By these transportation rollers 38A-38D, the paper from the sheet paper cassettes 32A-32D is led near the transfer area 30 of the photo conductor 26. The led paper is sent into the transfer area 30 by the resist rollers 35A and 35B synchronizing with the timing of the toner image formed in the surface of the photo conductor 26.

[0017]The **** detector S1 is installed near the exit of the discharge path 41. As this **** detector S1, an actuator etc. are usually used. The rollers 46A-46C for conveyance are arranged in accordance with the discharge path 41, and are rotated by the motor M4.

[0018]Operation of the copying machine 2 can be switched to two or more modes so that it may mention later, but the exposure means 17 moves in the direction shown by the arrow 56 at uniform

velocity between the position which stops in the position shown with the numerals 52 and 53 in drawing 1, or is shown with the numerals 54, and the positions shown with the numerals 55, and scans the manuscript surface. The home position of the exposure means 17 when the numerals 52 move a manuscript and it reads is shown, and the numerals 53 show the home position of the exposure means 17 when moving an exposure means and reading a manuscript. In order to make the position shown with the numerals 52 and 53 stop the exposure means 17 certainly, the detector S2 and S3 which detect the exposure means 17 are allocated respectively. Same detector S4 is arranged also in the stop position 55 of the exposure means 17 corresponding to the end of one side of the range in which a manuscript is laid in the manuscript stand 5. As these detectors, an actuator etc. are usually used.

[0019]In order to convey a paper synchronizing with the toner image formed in the photo conductor 26 surface, the detector S5 and S6 are arranged respectively in the feed route 34A and the conveying path between these feed route 34A and resist rollers 35A and 35B. Although the same detector is arranged also about the feed routes 34B-34D, the paper with which the toner image formed on the photo conductor 26 which is omitting the graphic display here was transferred in the transfer area 30 is conveyed to the anchorage device 58, and it is fixed to the transferred toner image by heating. Near the exit of the anchorage device 58, operation of the rollers 46A-46C for conveyance which the detector S7 is arranged and are arranged at the discharge path 41 based on this output signal is controlled. As this detector, an actuator etc. are usually used.

[0020]Drawing 2 is a sectional view showing the internal configuration of the manuscript conveying machine 1 shown in drawing 1. The manuscript tray 7 in which this manuscript conveying machine 1 is the 1st manuscript placing part, and the manuscript delivery tray 61 are formed. In order to call in to the manuscript tray 7 and to make the roller 8

adjoin, the solenoid coil 62 is formed. The calling-in roller 8 is supported so that it can rotate freely centering on the upper feed roller 63. If the solenoid coil 62 is turned on and magnetized, the calling-in roller 8 will contact a manuscript and feeding of a manuscript of it will be attained. In the middle of the guide plate 9 to which it shows the manuscript to which paper is fed, the manuscript feeding sensor 65 which detects passage of a manuscript is formed, and the manuscript delivery sensor 67 which detects passage of a manuscript is formed before the paper ejecting roller 66. The manuscript size detection sensor 64 which detects the size of each manuscript is formed in the manuscript tray 7 by feeding at a time with one manuscript laid in the manuscript tray 7 one by one. This manuscript size detection sensor 64 detects the size of a manuscript from the length of ON/OFF of an actuator, and the manuscript feeding sensor 65 detects passage of a manuscript by ON/OFF of an actuator.

[0021]The manuscript conveyed on the exposure glass plate 10 is conveyed by the platen roller 68, and the exposed manuscript is discharged by the manuscript delivery tray 61. The platen roller 68 is supported by the end face of one side of the exposure glass plate 10, enabling free rotation, and the right inversion of it is enabled by the stepping motor. It is installed in the platen roller 68 so that the follower roller 69 may carry out today's.

[0022]Drawing 3 is a top view showing the composition of the navigational panel 70 arranged at the upper surface of the main part 3, etc. in the copying machine 2. The numeric key 71 for this navigational panel 70 to set up the number of copy parts and Clear key 72 grade are allotted, Furthermore, By the print switch key 75 for directing the synthesis function key 74 for forming the manuscript conveying machine 1 into activity-izing / un-activity, and the start of copying operation, and the numeric key 71. It has the copy part numeral part 77 for displaying the set part numeral part 76 for displaying the number of copy parts set up, and copied number of copies,

and the synthesis function mode display part 79 grade. When it realizes, for example including a light emitting diode etc. and each mode is chosen, the above-mentioned synthesis function mode display part 79 is driven so that this light emitting diode may light up.

[0023]the state where the synthesis function mode display part 79 was turned on by carrying out pressing operation of the synthesis function key 74 as for the manuscript conveying machine 1 -- activity -- un-activity is formed where the light is-izing and put out. When laying manuscripts, such as books bookbinding-ized, for example, in the manuscript stand 5 and forming the copied image on a paper, an operator operates the above-mentioned synthesis function key 74, and makes the synthesis function mode display part 79 switch off. In making a manuscript convey using the manuscript conveying machine 1, combining the manuscript picture of two or more sheets on a paper and forming a copied image, it makes the synthesis function mode display part 79 into a lighted condition.

[0024]Next, the number of copy parts needed by operation of the numeric key 71 is set up. At this time, the set-up number of copy parts is displayed in the set part numeral part 76.

[0025]Following operation of the numeric key 71, by carrying out pressing operation of the print switch 75, the manuscript conveying machine 1 and the main part 3 of the copying machine 2 collaborate and operate, and copying operation is started. At this time, end number of copies of a copy is displayed on the copy part numeral part 77 one by one. If the number displayed on the copy part numeral part 77 as the number of set parts displayed on the set part numeral part 76 is in agreement, the copying machine 2 will suspend operation and the display of the set part numeral part 76 will be reset by "0." At this time, the display in the copy part numeral part 77 is maintained, without being reset until pressing operation of the print switch 75 is carried out next. It is also possible to set up imaging conditions from these keys.

[0026]Drawing 4 is a figure showing the

electric constitution of the control system which controls operation of the copying machine 2. Two or more motors M1, M2, ..., etc. are connected to the output of the motor drive circuit 80. Two or more solenoid coil SOL1, SOL2, ..., etc. are connected to the output of the solenoid driving circuit 82. The control element used for each drive circuits 80-82 and DC-power-supply 83 grade, a manuscript transfer control, paper conveyance control, and control of a copying process is connected to the interface circuitry 84. The above-mentioned detector (detection sensor) S1, S2, ..., etc. are connected to the interface circuitry 84, and the processing circuit 85 realized by a microcomputer etc. is further connected to it. The signal from the detector S1, S2, ..., etc. is given to the processing circuit 85, and data processing corresponding to this signal is performed in the processing circuit 85. A driving control signal is given to each drive circuits 80-82 via the interface circuitry 84 from the processing circuit 85.

[0027]The read-only memory (it is hereafter called ROM for short) 86 and the random access memory (it is hereafter called RAM for short) 87 are connected to the processing circuit 85. The processing circuit 85 performs a control action, using the storage area of RAM87 as workspace etc. according to the program for control stored in ROM86.

[0028]It is connected to the light control unit 89 via the drive circuit 88, and the interface circuitry 84 gives the control signal for a display to the indicator 90 containing each indicators 76, 77, and 79 of the navigational panel 70 via the display driving circuit 91. The key 92 for operation including the ten key 71, Clear key 72, the synthesis function key 74, and the print switch (copy start key) 75 is connected to the processing circuit 85 via the interface circuitry 84, and key operation is told to the processing circuit 85.

[0029]This copying machine 2 is used for below, and the operation in the case of carrying out the synthetic copy of the manuscript of two sheets at the rate of actual size on the same paper is explained, referring to the flow chart of

drawing 5. First, at Step 100, if pressing operation of the print switch is carried out, operation will be started, the manuscript acquisition detection sensor etc. which are omitting the graphic display, for example detect whether the manuscript was set to the manuscript tray 7 which is the 1st manuscript placing part at Step 101, and it stands by until a manuscript is set.

[0030]If a manuscript is set, in Step 102, the calling-in roller 8 and feed roller 63 grade will be driven, and even the exposure glass plate 10 will feed paper to the first one sheet of the manuscript currently laid in the manuscript tray 7. If the manuscript of the 1st sheet is conveyed, feeding of a manuscript will be continued until the manuscript feeding sensor 65 will detect passage of a manuscript and will be in an ON state.

[0031]If a manuscript feeding sensor will be in an ON state in Step 103, in Step 104, the picture of the manuscript of the 1st sheet will be read by an exposure means.

[0032]Next, if a manuscript delivery sensor will be in an ON state in Step 105, it will be judged whether in Step 106, paper was fed to the manuscript of the 2nd sheet.

[0033]When paper is not fed to the manuscript of the 2nd sheet, processing of Step 102 - Step 105 is repeated. That is, the calling-in roller 8 and feed roller 63 grade are driven, even the exposure glass plate 10 feeds paper to the 2nd sheet of the manuscript currently laid in the manuscript tray 7, and the picture of the manuscript of the 2nd sheet is read by an exposure means.

[0034]On the other hand, when paper is fed to two manuscripts, drive a motor, and a clutch and a solenoid coil, choose the paper accommodated in either of the paper cassettes in Step 107, a paper is made to convey, and paper is fed.

[0035]If a paper is conveyed, it will stand by until paper detection sensors will detect passage of a paper and will be in an ON state in Step 108.

[0036]Next, in Step 109, based on the unfilled space interval between the pictures which are mentioned later and which were set up beforehand, image

composing is formed so that two pictures may not lap on a photo conductor. Then, a toner image is transferred on a paper, adjusting so that a toner image tip and a paper tip may suit with a resist roller.

[0037]Next, in Step 110, the paper with which image composing was formed is discharged on a paper discharging tray, and operation ends it. Even when a manuscript is three or more sheets, image composing can be formed similarly.

[0038]In this embodiment, it is possible by establishing the correction value alpha as an unfilled space interval between pictures, and computing reducing magnification according to a following formula (1) to set up an unfilled space interval suitable between the copied pictures.

[0039]

[Equation 1]

$$R = \frac{P}{(D + \alpha) \times N} \times 100 (\%) \quad \dots (1)$$

[0040]Here, as for reducing magnification and D, the manuscript size about a transportation direction and P of R are the paper sizes about a transportation direction, and N is manuscript number of sheets. In carrying out the reduction composition copy of the manuscript of two or more sheets at the manuscript of one sheet, Do not perform an exposure process, but make the 2nd manuscript placing part once convey the laid manuscript from the 1st manuscript placing part with the manuscript conveying machine 1, and the manuscript size detecting means 93 detects manuscript size, and manuscript number of sheets is recognized with the manuscript number-of-sheets integration counter 95. The paper size of the paper with which a manuscript picture is formed by the paper-size detection means 94 is detected.

[0041]On the other hand, it can be decided by the correction value alpha with a ten key of drawing 3 that a user will be a desired value.

[0042]In order to improve appearance of image composing, it may be made to set up an unfilled space interval of a picture automatically based on a selected paper size. In this case, a predetermined table is

prepared beforehand, it relates with a paper size, and an unfilled space interval of a picture is set up. For example, as shown in drawing 6 (a), when a paper of A4 size is chosen to a manuscript of B5 size, an unfilled space interval of a picture shall be 5 mm, and when B5 size is chosen, data which sets an unfilled space interval of a picture to 4 mm is memorized on a table. As shown in drawing 6 (b), when a paper of A4 size is chosen to a manuscript of A4 size, an unfilled space interval of a picture shall be 5 mm, and when B5 size is chosen, data which sets an unfilled space interval of a picture to 4 mm is memorized on a table.

[0043] Since appearance of a picture changes also with size of a conveyed manuscript, it may be made to set up an unfilled space interval of a picture automatically based on manuscript size. It may be made to set up an unfilled space interval of a picture automatically based on installation manuscript total size (DxN) computed from manuscript number of sheets and manuscript size. For example, when total size of a manuscript is large, an unfilled space interval of a picture is made small, and when total size of a manuscript is small, an unfilled space interval of a picture is enlarged. Also in these cases, an unfilled space interval can be set as a table.

[0044] And a manuscript laid in the 2nd manuscript placing part is again reset to the 1st manuscript placing part, and a synthetic copy is performed with desired reducing magnification. At this time, information read from the manuscript size detecting means 93, the paper-size detection means 94, or manuscript number-of-sheets integration counter 95 grade is called to RAM87 at any time, The processing circuit 85 recognizes as manuscript size D, paper-size P, and the manuscript number of sheets N, sets up further by one which mentioned the unfilled space interval alpha above of methods, and memorizes in a memory of a processing circuit. And according to the above-mentioned formula (1), the reducing magnification R is computed by the processing circuit 85.

[0045]About feed timing of a manuscript for performing a synthetic copy, as mentioned above, when a manuscript of the 1st sheet is discharged and it is detected by a manuscript delivery sensor, drive controlling of the calling-in roller 8 of the manuscript conveying machine 1 can be carried out, and it can be adjusted.

[0046]For example, if it is set to $P=2D$ and $N=4$ and sets to $\alpha=5$ mm in carrying out the reduction composition copy of the manuscript of A4 size of four sheets at a manuscript of A4 size of one sheet, it will become $R=50\%$.

[0047](Embodiment 2) Drawing 7 is a figure for explaining copy operation in an image forming device of Embodiment 2. By this embodiment, a character manuscript of one sheet is made into a rate of actual size among manuscripts laid in the manuscript conveying machine 1, and a case where reduce a figure manuscript of two sheets and a synthetic copy is carried out is explained. Fundamental composition of the copying machine 2 and its main part 3 is the same as that of above-mentioned drawing 1 - drawing 4.

[0048]In drawing 7, when compounding and carrying out image formation of the character manuscript D1, the figure manuscript D21, and D22 on the paper D3, first, the optical scan of the character manuscript D1 is carried out by the exposure means 17 through the exposure glass plate 10, and a picture is copied in the paper D3. Next, when performing the figure manuscript D21 and image formation of D22, reducing magnification is computed by using the above-mentioned formula (1) by the processing circuit 85, and the magnification R performs image formation. However, size of a margin portion left behind after forming a picture of the character manuscript D1 is used as paper-size [of the above-mentioned formula (1)] P here. It can ask for size of this margin portion easily from that information and paper-size information by forming a detection sensor (manuscript size detection sensor) which carries out direct detection of the size of the character manuscript D1.

[0049]For example, if size of the

manuscript D1, D21, and D22 is A4 size and a paper is A3 size, P becomes A4 size, and if it sets to $\alpha = 4$ mm, it will be $R = 70\%$.

[0050] When a manuscript tip of the figure manuscript D21 arrives at an exposure position on the exposure glass plate 10, conveyance of a paper is controlled so that a center section of the paper becomes the transfer area 30, and a picture of the figure manuscript D21 is copied on a paper. Since a position shifted to the back end side only one fourth rather than a paper center section becomes the transfer area 30 similarly when a manuscript tip of the figure manuscript 22 arrives at an exposure position on the exposure glass plate 10, a picture of the figure manuscript 22 is copied on a paper. Thereby, a desired synthetic copy can be formed on the paper D3.

[0051] (Embodiment 3) Drawing 8 is a figure showing the principal part in electric constitution of a control system in an image forming device of this Embodiment 3. Other composition is the same as that of above-mentioned drawing 1 - drawing 4. By this embodiment, sufficient reducing magnification required in order to carry out the synthetic copy of the manuscript for installation number of sheets on a paper for desired number of sheets by manuscript size, a paper size, manuscript installation number of sheets, and desired paper number of sheets is determined, and a case where a reduction composition copy is performed is explained.

[0052] For example, in carrying out the reduction composition copy of the manuscript of A4 size of four sheets at a manuscript of A4 size of two sheets. Information read from the manuscript size detecting means 93, the paper-size detection means 94, the manuscript number-of-sheets detection means (manuscript number-of-sheets integration counter) 95, and paper number-of-sheets input means 96 grade is called to RAM87 at any time, The processing circuit 85 recognizes as manuscript size D, paper-size P, the manuscript number of sheets N1, and the paper number of sheets N2,

and sets up and memorizes the unfilled space interval α further. Here, D and P are a manuscript about a transportation direction, and the size of a paper. Manuscript number of sheets is counted like Embodiment 1, and paper number of sheets is inputted from the numeric key 71 on the navigational panel 70. The processing circuit 85 computes the reducing magnification R according to a following formula (2).

[0053]

[Equation 2]

$$R = \frac{P \times N_2}{(D + \alpha) \times N_1} \times 100 (\%) \quad \dots (2)$$

[0054]According to this embodiment, since it is $P=D$, $N_1=4$, and $N_2=2$, if it sets to $\alpha=5$ mm, it will become $R=50\%$ from the above-mentioned formula (2), a manuscript picture will be reduced to one half, and a synthetic copy will be performed. About the feed timing of the manuscript for performing this synthetic copy, as mentioned above, when the manuscript of the 1st sheet is discharged and it is detected by a manuscript delivery sensor, drive controlling of the calling-in roller 8 of the manuscript conveying machine 1 can be carried out, and it can be adjusted.

[0055](Embodiment 4) Drawing 9 is a figure showing the principal part in electric constitution of a control system in an image forming device of this Embodiment 4. Other composition is the same as that of above-mentioned drawing 1 - drawing 4. By this embodiment, sufficient reducing magnification required in order to carry out the synthetic copy of the manuscript for desired number of sheets on a paper for desired number of sheets by manuscript size, a paper size, manuscript installation number of sheets, desired paper number of sheets, and number of sheets to make it reduce is determined, and a case where a reduction composition copy is performed is explained.

[0056]For example, after inputting paper number of sheets by the numeric key 71 on the navigational panel 70 shown in drawing 3, It can copy by inputting number of sheets (for example, number of sheets of a display, etc.) indicates "CO"

by blink and the reduction copy of the set part numeral part 76 is carried out [number of sheets] from number of ** 71 key during blink for several seconds, without making a cover reduce also to a manuscript with a cover.

[0057]After inputting number of sheets which carries out a reduction copy by the numeric key 71, by manuscript size, a paper size, manuscript installation number of sheets, and desired paper number of sheets, sufficient reducing magnification required in order to obtain a synthetic copy for input number of sheets is computed, and a reduction copy is performed.

[0058]For example, the following control is performed when carrying out the synthetic copy of a cover of one sheet, and the manuscript of a total of five sheets of the four texts at one sheet. first -- if paper number of sheets "1" is inputted by the numeric key 71 -- the set part numeral part 76 -- for several seconds -- "CO" -- it blinks. If cover number of sheets "1" is inputted at this time, information read from the manuscript size detecting means 93, the paper-size detection means 94, the manuscript number-of-sheets detection means (manuscript number-of-sheets integration counter) 95, the paper number-of-sheets input means 96, and cover number-of-sheets input means 97 grade will be called to RAM87 at any time, The processing circuit 85 recognizes as manuscript size D, paper-size P, the manuscript number of sheets N1, the paper number of sheets N2, and the cover number of sheets N3, and sets up and memorizes the unfilled space interval alpha. Here, D and P are a manuscript about a transportation direction, and the size of a paper. Manuscript number of sheets is counted like Embodiment 1, and paper number of sheets and cover number of sheets are inputted from the numeric key 71 on the navigational panel 70. When the cover number of sheets N3 is inputted, N three sheets are accepted and a copy (a manuscript picture of one sheet is formed in a paper of one sheet) by normal operation is performed. In this case, since cover number of sheets "1" is inputted, one copy by normal operation is

performed. Subsequent operation can be performed like Embodiment 1 - Embodiment 3.

[0059](Embodiment 5) Drawing 10 is a figure showing the principal part in electric constitution of a control system in an image forming device of this Embodiment 5. Other composition is the same as that of above-mentioned drawing 1 - drawing 4. According to this embodiment, image size and reducing magnification in a manuscript explain a case where a reduction composition copy is performed.

[0060]For example, a case where the reduction composition copy of the manuscript of A4 size of four sheets is carried out at a paper of A4 size of one sheet is explained. When detecting image size, paper is fed to a manuscript on the exposure glass plate 10, and an imaging range is made to recognize in an output wave of an acoustic emission sensor, as shown in drawing 11. That is, a tip of a picture is detected by voltage change (T1) of the start when a manuscript is fed [paper] to it and exposed, and the back end of a picture is continuously detected by the 2nd voltage change (T2). If the back end of a picture is detected, the platen roller 68 will be accelerated and a manuscript will be discharged quickly. And when the manuscript delivery sensor 67 detects discharge of a manuscript, a manuscript of the 2nd sheet is called in, and paper is fed on the exposure glass plate 10 with the roller 8, it exposes, the back end of a picture is detected in an acoustic emission sensor like the above, the platen roller 68 is accelerated, and it is made to discharge. Thereby, only an imaging range of a manuscript of four sheets can be recognized and a paper of one sheet can be made to form an image, as shown in drawing 12. In this case, a table which set up a desired unfilled space interval, for example is created beforehand, and an unfilled space interval of a picture can be set up using this table.

[0061]

[Effect of the Invention]The unfilled space interval between the pictures which were set up by the picture space interval setting-out means according to this

invention to have explained in full detail above, It is possible to make an image form, without determining reducing magnification based on manuscript number of sheets, the installation manuscript total size computed from manuscript size, and a paper size, reducing the manuscript picture of two or more sheets to the whole surface of the paper of one sheet, and lapping. Therefore, without a device's growing large like conventional technology, or causing damage to a paper, the unfilled space interval between pictures can be set up, and the picture from the manuscript of two or more sheets can be combined and formed on the same paper.

[Translation done.]